REMARKS

Applicants respectfully request reconsideration of the claims. Claims 1-49, 51, 55, 62, 64, 79, and 83 are cancelled. Claims 78, 80-82, and 84-98 are withdrawn. Claims 50, 52-54, 56-61, 63, 65-77 are pending.

No new matter has been added. Amendment of the claims is made solely to expedite prosecution of the above-identified application. Applicants reserve the right to prosecute the same or similar claims in the present or future applications. The amendments made are not related to any issues of patentability.

Elections/Restrictions

The Examiner has erroneously withdrawn claims 61, 63, and 65-77. These claims should be examined with the rest of the group I claims for the following reasons.

The Examiner mailed a Restriction Requirement in this case on October 6, 2010 requesting restriction between group I, which included claims 50-77, and group II, which included claims 78-98. Applicants elected group I, claims 50-77, with traverse in the response dated November 8, 2010. Claims 50-77 were presented with a Preliminary Amendment dated June 22, 2010. In the Preliminary Amendment, claims 50-60 were directed to an article and claims 61-77 were directed to a method. **Both the article claims and the method claims were part of Group I in the Restriction Requirement.**

In the most recent Office Action, the Examiner states that "[n]ewly amended claims 61, 63, and 65-77 are also directed to an invention that is independent and distinct from the elected polymer article for the following reasons: These claims read on a method of preparing a composite." The Office Action then erroneously cites MPEP § 821.03 for support. Section 821.03 is directed to claims *added* by amendment, not merely amended claims:

> **821.03 Claims for Different Invention Added After an Office Action [R-3]**
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> Claims added by amendment following action by the examiner, MPEP § 818.01, § 818.02(a), to an invention other than previously claimed, should be treated as indicated by 37 CFR 1.145.

Claims 61, 63, and 65-77 were present at the time the Restriction Requirement was made and were directed to a method of forming a polymer-inorganic composite article. While the claims were amended with the election, they were not "added by amendment." The Examiner perhaps should have made a three-way restriction if the intention was to separate out the article claims from the method claims in claims 50-77. But, this is not the restriction that was made. Since the restriction grouped claims 50-77 together, Applicants wanted to examine all the claims in 50-77. If the Examiner had made a restriction that required election of either the method claims or the article claims, Applicants perhaps would have elected different claims.

Accordingly, Applicants respectfully request correction and examination of claims 50-77.

Rejections Under 35 U.S.C. § 102(b) or Alternatively 35 U.S.C. § 103(a)

Claims 50, 52-54, and 56-60 were rejected under 35 USC §102(b) as anticipated by or, in the alternative, 35 USC §103(a) as being unpatentable over Philips (US Pat. 4,471,009), Sakamoto et al. (US Pat. 5,006,589), Siddiqui (US Pat. 5,132,356), Fujimoto et al (US Pat. 5,318,833), and Scarlette (US Pat. 6,399,689). Applicants respectfully traverse this rejection.

The Office Action argues that each of these cited references discloses a polymer-particle composite material, and that the feature used to distinguish the article, namely the particles in the polymer article having an interparticle distance of 2-10 μm, would be an inherent property of any such article. Applicants disagree. The interparticle distance is a function of the particle size, the dispersibility of the particles in the polymer and loading rate. In order for a polymer article to inherently possess this feature, the average particle diameter and the particle loading rate would need to be pre-determined, and the particles would need to be added to the polymer so as not to agglomerate. There is no indication in any of the references of the need to add the particles to the polymer to satisfy these criteria. The Office Action has also failed to consider the features of the pending claims, such as the polymer article being free of gas bubbles.

US 4,471,009 (Philips) Philips relates to heat-hardenable film-forming compositions having fine particulate matter dispersed therein, particularly for use as coatings for magnetic

memory elements. Contrary to the present invention, fatty esters are added to the polymer films of Philips in order to improve the physical and mechanical properties of the film. In particular, with reference to the examples, it can be seen that increasing the quantity of jojoba oil in the composition, up to 8 wt.%, improves the physical performance of the polymer film. See Table II. While particles are added, they are for other purposes. In particular, "magnetization capability of the composition is derived from the inclusion of fine particulate material dispersed throughout the coating composition." See Philip, 3:57-59. Furthermore, there is a passing comment related to inclusion of alumina particles. It is stated, "the coating composition further includes fine particles of alumina dispersed therethrough, to enhance the durability of the coating and to provide it with a small degree of abrasiveness effective in maintaining the recording and reproducing heads free of debris." Philip, 4:63-68. Indeed it is likely that for the purpose of abrasiveness, it is preferable to not have an even particle distribution within the film. This is because an even particle distribution potentially decreases the friction between the film and the reproducing heads as the total surface to surface contact is reduced, lowering the frictional forces as the film is moved across the heads, thus reducing its abrasiveness.

That is, there is no suggestion in Philips that demonstrates that a distribution of the particulate with an average interparticle distance of between 2 μm to 10 μm within the matrix material was achieved. There is no mention of the process by which the particles are incorporated into the film. Therefore no conclusion can be reached as to whether these particles are dispersed throughout the film according to the requirements of claim 1 of the present application. As such, the film of Philips can not be assumed to inherently posses the properties of the film of the present application.

Furthermore, the main teaching of Philips is the contribution of the fatty esters toward improving the physical performance of the film. As such, there is no suggestion in Philips that would lead one skilled in the art to apply particulate inclusions to arrive at the present invention.

US 5,006,589 (Sakamoto et al.) Sakamoto et al. discloses a polyester film for magnetic recording media that contains inorganic particles. This provides for a film that has abrasion

resistance and so is useful as a base film for magnetic recording media. The film of Sakamoto et al. comprises two types of particles; this is because it was found that "especially a striking improvement of scuff resistance, could be obtained by using two types of particles (A) and (B)." See Sakamoto et al. at 5:10-17. Sakamoto et al. then goes on to state particles (B), constituting "heat-resistant polymer particles may be porous." Sakamoto et al. at 5:57. Particles that are porous contain air. Sakamoto et al. specifically teaches the use of porous particles, and therefore teaches away from production of a polymer article substantially free of gas bubbles. Sakamoto et al. teaches that inclusion of air within said article is acceptable. In contrast, the present invention specifically recites in claim 50 that the polymer article is substantially free of gas bubbles. Accordingly, it is submitted that the present application is both novel and inventive over Sakamoto et al.

US 5,132,356 (Siddiqui) Siddiqui has one independent claim. This claim relates to "a linear polyester containing glass spheres having an average particle size of about 2-3 microns . . . in an amount that ranges between about 1 part per million to about 30 parts per million based upon the weight of the film." Siddiqui at claim 1; see also 2:37-43. It is stated that the "addition of glass spheres improves several properties of the film, including the dynamic coefficient of friction." Siddiqui at 2:25-27. These particles are significantly larger than the particles of the present invention. The particles of the present invention are in the size range of 1 nm up to 1000 nm.

Furthermore, the concentration of particles in Siddiqui, up to 30 ppm (0.003 wt.%) is far less than the minimum concentration of the present invention, which is 0.01 wt.%. Siddiqui at 2:43-50. As a result, Siddiqui and claim 1 of the present invention cover completely different subject matter.

As the particles of Siddiqui are much larger and are present in the polyester at a much lower volume fraction, the absolute quantity of particles in the polyester is going to be many orders of magnitude less than in the present invention. Consequently, even if the particles were "inherently" dispersed, it is not possible for them to be dispersed according to the feature of

claim 50, with an interparticle distance between the particles being less than 2 μm to 10 μm. As such, it is submitted that claim 50 is novel over the disclosure of Siddiqui.

Furthermore, there is no suggestion or teaching in Siddiqui that removal of gas bubbles would improve the polymer film. Siddiqui states that "preferably a second additive, fumed silica . . . is additionally added to the film." Siddiqui at 2:28-30. The "addition of fumed silica additionally improves . . . the static coefficient of friction of the film." Siddiqui at 2:30-34. That is, Siddiqui teaches that additional particles should be added to improve the film. This contrasts with the present invention, which addresses this problem by preventing the formation of gas bubbles during the formation of the polymer composite. It is therefore submitted that the present application is both novel and inventive over Siddiqui.

US 5,318,833 (Fujimoto et al.) Fujimoto et al. discloses a polyester film where the film is characterized by a coagulate of primary particles with an average particle diameter of 0.1-5 μm. It is stated in Fujimoto et al. that "with particles having an average particle diameter smaller than 0.1 μm, the resulting film is poor in running property and abrasion resistance." Fujimoto et al. at 3:49-53. In contrast, the present invention claims particles with an average diameter of 1 nm up to 1000 nm. Therefore, Fujimoto et al. teaches away from the present invention.

Fujimoto et al. teaches the use of coagulated silica that is porous in nature. Again, this implies the presence of air within the composition. The present invention requires that the polymer article is substantially free of gas bubbles. Accordingly, the disclosure of Fujimoto et al. teaches away from the present invention.

There is also no disclosure in Fujimoto et al. that demonstrates that a distribution of the particulate with an average interparticle distance of between 2 μm and 10 μm within the matrix material was achieved. Significantly larger particles are used in Fujimoto et al. at a weight fraction that is not matched for the interparticle distance to fall within the claimed range of the present application.

It is submitted that for the above mentioned reasons, the present invention is both novel and inventive over Fujimoto et al.

US 6,399,689 (Scarlette) Scarlette relates to the production of a coating material that can be applied to improve the physical resistance of an object. Scarlette claims a coating composition "comprising a film-forming resin composition and a sol gel process ceramic grain composition wherein the grain contains aluminium oxide, wherein the aluminium oxide grains form about 1 to about 60 percent by weight of the coating, and wherein the aluminium oxide grain ranges from about 0.5 μm to 130 μm in size." While Scarlette discusses the aluminium oxide grain size range of 0.5 μm to 130 μm, there is no evidence in the examples that particle sizes below 1 μm were produced. In fact there is no experimental data on particle sizes. There is no mention in Scarlette of producing an article free of gas bubbles. There is no mention in Scarlette of ensuring that the particulate material is evenly distributed. There is no mention in Scarlette that the polymer article has particles with an average interparticle distance of between 2 μm and 10 μm. Even if Scarlette were to show use of particles <1 μm an appropriate particle loading matched to the particle size would be required for the interparticle distance to fall within the claimed range of the present application. As such, the present invention is novel and inventive over Scarlette.

In view of the above amendments and remarks, Applicant respectfully requests a Notice of Allowance. If the Examiner believes a telephone conference would advance the prosecution of this application, the Examiner is invited to telephone the undersigned at the below-listed telephone number.

Please consider this a PETITION FOR EXTENSION OF TIME for a sufficient number of months to enter these papers or any future reply, if appropriate. Please charge any additional fees or credit overpayment to Deposit Account No. 13-2725.

Respectfully submitted,

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